

## REMARKS

By the foregoing amendment, Claims 1, 2, 19 and 30 have been amended, and new Claim 37 has been added. Favorable reconsideration of the application is respectfully requested.

Claims 1-3, 5, 7 and 10-13 were rejected under 35 U.S.C. 103(a) on the grounds of obviousness from Leshem in view of Espy, and further in view of Horst et al., Hillis, Dekoning, et al., Swanson et al. and Brant et al. The Examiner acknowledged that Leshem and Horst et al. do not teach mass storage modules each including a storage device bypass circuit board, but indicated that Espy teaches each mass storage module including a storage device bypass circuit board associated with each storage device. Claim 1 has been amended to recite "each of said storage device bypass circuit boards of said first and second mass storage modules including first and second electrical switches, each of said first and second electrical switches including input and output electrical connections to said first and second controllers, respectively, each of said first and second electrical switches including input and output electrical connections to a corresponding one of said plug-in storage devices, and a fault signal output produced by said corresponding one of said plurality of storage devices being connected to each of said first and second electronic switches to control switching of said first and second electrical switches to alternatively route signals to and from said first and second controllers to and from said corresponding one of said plurality of storage devices, or to bypass said corresponding one of said plurality of storage devices." Support for the amendment can be found in the specification at page 13, line 16, to page 14, line 17, and in Fig. 10. It is

respectfully submitted that none of the references cited teach, disclose or suggest, either individually or in combination, storage device bypass circuit boards each including first and second electrical switches, each of said first and second electrical switches including input and output electrical connections to first and second controllers, respectively, each of said first and second electrical switches including input and output electrical connections to a corresponding plug-in storage device, and a fault signal output produced by the storage device connected to each of the first and second electronic switches to control switching of the first and second electrical switches to alternatively route signals to and from the first and second controllers to and from the storage device, or to bypass the storage device, as is claimed.

While the bypass switches of Leshem establish a default signal path and a back signal path between a controller and a disk drive, in the present invention, the two electrical switches correspond to the two signal paths A and B illustrated in Figs. 3 and 5, and enable the high speed mass storage system of the invention to provide independent and simultaneous communication between the controllers and disk drives. It is respectfully submitted that Claims 1-3, 5, 7 and 10-13 are novel and inventive over Leshem, Espy, Horst et al., Hillis, Dekoning, et al., Swanson et al. and Brant et al., either taken individually or in combination, and that the rejection of Claims 1-3, 5, 7 and 10-13 on the grounds of obviousness from Leshem in view of Espy, and further in view of Horst et al., Hillis, Dekoning, et al., Swanson et al. and Brant et al. should be withdrawn.

Claims 6, 16, 19-21, 23, 24, 28-31 and 34 were rejected under 35 U.S.C. 103(a) on the grounds of obviousness from Leshem in view of Espy, and further in view of Horst et

al., Hillis, Dekoning et al., Swanson et al., Brant et al. and Harvey. Harvey was cited as disclosing a module including a storage device bypass board connector for each of the storage device bypass circuit boards with an opening between each connector to permit air flow between the connectors for cooling purposes to prevent overheating of the drive and related hardware. Claims 6 and 16 depend from Claim 1, discussed above, and it is respectfully submitted that Harvey also fails to teach, disclose or suggest storage device bypass circuit boards each including first and second electrical switches, each of said first and second electrical switches including input and output electrical connections to first and second controllers, respectively, each of said first and second electrical switches including input and output electrical connections to a corresponding plug-in storage device, and a fault signal output produced by the storage device connected to each of the first and second electronic switches to control switching of the first and second electrical switches to alternatively route signals to and from the first and second controllers to and from the storage device, or to bypass the storage device, as is claimed. It is respectfully submitted that Claims 6 and 16 are novel and inventive over Leshem, Espy, Horst et al., Hillis, Dekoning et al., Swanson et al., Brant et al. and Harvey, whether taken individually or in combination.

Claim 19 also has been amended to recite "each of said disk drive bypass circuit boards of said first and second mass storage modules including first and second electrical switches, each of said first and second electrical switches including input and output electrical connections to said first and second controllers, respectively, each of said first and second electrical switches including input and output electrical connections to a

corresponding one of said plug-in disk drives, and a fault signal output produced by said corresponding one of said plurality of disk drives being connected to each of said first and second electronic switches to control switching of said first and second electrical switches to alternatively route signals to and from said first and second controllers to and from said corresponding one of said plurality of storage devices, or to bypass said corresponding one of said plurality of storage devices." It is respectfully submitted that none of the references cited teach, disclose or suggest, either individually or in combination, storage device bypass circuit boards each including first and second electrical switches, each of said first and second electrical switches including input and output electrical connections to first and second controllers, respectively, each of said first and second electrical switches including input and output electrical connections to a corresponding plug-in storage device, and a fault signal output produced by the storage device connected to each of the first and second electronic switches to control switching of the first and second electrical switches to alternatively route signals to and from the first and second controllers to and from the storage device, or to bypass the storage device, as is claimed.

Claim 19 also has been amended to recite "each of said module bypass circuit boards of said first and second mass storage modules including first and second electrical switches, each of said first and second electrical switches including input and output electrical connections to said first and second controllers, respectively, each of said first and second electrical switches including input and output electrical connections to said optical input/output connector, and a signal detect output produced by said optical

input/output connector being connected to each of said first and second electronic switches to control switching of said first and second electrical switches to alternatively route signals to and from said first and second controllers to and from a corresponding one of said first and second mass storage modules, or to bypass said corresponding one of said first and second mass storage modules." It is respectfully submitted that none of the references cited teach, disclose or suggest, either individually or in combination, module bypass circuit boards each including first and second electrical switches, each of the first and second electrical switches including input and output electrical connections to first and second controllers, respectively, each of the first and second electrical switches including input and output electrical connections to an optical input/output connector, and a signal detect output produced by the optical input/output connector being connected to each of the first and second electronic switches to control switching of the first and second electrical switches to alternatively route signals to and from the first and second controllers to and from a mass storage module, or to bypass the mass storage modules, as is claimed.

It is therefore further respectfully submitted that Claims 19-21, 23, 24, 28-31 and 34 are also novel and inventive over the Leshem, Espy, Horst et al., Hillis, Dekoning et al., Swanson et al., Brant et al. and Harvey, either taken individually or in combination, and that the rejection of Claims 6, 16, 19-21, 23, 24, 28-31 and 34 on the grounds of obviousness from Leshem in view of Espy, and further in view of Horst et al., Hillis, Dekoning et al., Swanson et al., Brant et al. and Harvey should be withdrawn.

New Claim 37 also recites "each of said module bypass circuit boards of said first and second mass storage modules include first and second electrical switches, each of said first and second electrical switches including input and output electrical connections to said first and second controllers, each of said first and second electrical switches including input and output electrical connections to said optical input/output connector, and a signal detect output produced by said optical input/output connector being connected to each of said first and second electronic switches to control switching of said first and second electrical switches to alternatively route signals to and from said first and second controllers to and from a corresponding one of said first and second mass storage modules, or to bypass said corresponding one of said first and second mass storage modules." It is therefore respectfully submitted that Claim 37 should also be allowable over the references cited.

Claims 8, 9, 17, 18, 25-27, 35 and 36 were rejected under 35 U.S.C. 103(a) on the grounds of obviousness from Leshem in view of Espy, and further in view of Horst et al., Hillis, Dekoning et al., Swanson et al., Brant et al., Harvey and Kimura et al. Claims 8, 9, 17 and 18 depend from Claim 1, discussed above, and Claims 25-27, 35 and 36 depend from Claim 19, discussed above. Kimura et al. was cited as teaching that each drive bypass circuit board is relatively flat. It is respectfully submitted that Kimura et al. also does not teach, disclose or suggest, either individually or in combination, storage device bypass circuit boards each including first and second electrical switches, each of said first and second electrical switches including input and output electrical connections to first and second controllers, respectively, each of said first and second electrical switches

including input and output electrical connections to a corresponding plug-in storage device, and a fault signal output produced by the storage device connected to each of the first and second electronic switches to control switching of the first and second electrical switches to alternatively route signals to and from the first and second controllers to and from the storage device, or to bypass the storage device, as is claimed, or storage device bypass circuit boards each including first and second electrical switches, each of said first and second electrical switches including input and output electrical connections to first and second controllers, respectively, each of said first and second electrical switches including input and output electrical connections to a corresponding plug-in storage device, and a fault signal output produced by the storage device connected to each of the first and second electronic switches to control switching of the first and second electrical switches to alternatively route signals to and from the first and second controllers to and from the storage device, or to bypass the storage device, as is claimed. It is therefore respectfully submitted that Claims 8, 9, 17, 18, 25-27, 35 and 36 are novel and inventive over Leshem, Espy, Horst et al., Hillis, Dekoning et al., Swanson et al., Brant et al., Harvey and Kimura et al., either individually or in combination, and that the rejection of Claims 8, 9, 17, 18, 25-27, 35 and 36 on the grounds of obviousness from Leshem in view of Espy, and further in view of Horst et al., Hillis, Dekoning et al., Swanson et al., Brant et al., Harvey and Kimura et al. should be withdrawn.

In light of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance, and an early favorable action in this regard is respectfully requested.

Respectfully submitted,

FULWIDER PATTON LLP

By:

James W. Paul  
Reg. No. 29,967

JWP/rvw  
Encls.: Return Postcard

Howard Hughes Center  
6060 Center Drive, Tenth Floor  
Los Angeles, CA 90045  
Telephone: (310) 824-5555  
Facsimile: (310) 824-9696  
Customer No. 24201  
154381.1